

## CASE OF OSTEOPHYTIC INFLAMMATION OF THE RIGHT RADIUS: RESECTION; PRESERVATION OF A USEFUL HAND.

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WHILE on duty at Fort Riley, Kansas, I was called in consultation, July 25th, 1873, to see Mrs. H——, aged 27, born in New Orleans, a tall, well-developed physique, fair complexion, blue eyes, light-brown hair, and of nervous temperament.

*History.*—Until recently has been a professional actress—was married and gave birth to her first child during the thirteenth year of her age. Is free from constitutional taint, but has been a sufferer from oft-repeated attacks of articular rheumatism of an inflammatory character, for several years, resulting in considerable enlargement of the knee-joints; the functions of the right knee having become gradually and seriously impaired. About nine months ago had a violent and protracted attack of the malady; the knee and wrist-joints suffering the brunt of the disease, which, after some weeks, assumed a subacute or chronic type.

Some three months subsequently the character assumed by the disease, involving the right wrist, would indicate that at about that period symptoms of periosteal inflammation were manifest, and shortly thereafter the soft parts situated over the inner and dorsal aspect of the distal half of the radius suppurated, leaving a foul intractable ulcer, which has continued since then to enlarge and suppurate profusely.

The system appears to have interposed but feeble resistance to the destructive tendency of the disease, as, within the last few days, two gangrenous sloughs, each about an inch in diameter, have destroyed the tegumentary and muscular tissues in the line of the long axis of the radius.

During the progress of the disease the general health of the patient was seriously depressed, and the constant pain induced a resort to the excessive use of opiates, which caused considerable disturbance to the organs of digestion. Sleep was seldom obtained except by the aid of narcotics.

Upon making an examination, I perceived at a glance that the disease had involved the osseous structures and that necrosis had taken place, which conditions were verified on introducing a probe to the bottom of the ulcer. The patient stated that hitherto no exploration had been made, and that she was then *en route* to an eastern city for the purpose of having the arm amputated, in accordance with the advice of her former medical attendant. The result of my examination convinced me that such an extreme measure was unnecessary; and as the woman was naturally very anxious to save the hand if possible, I advised resection of such portions of diseased bone as might be found involved, as a means to meet the desirable result, believing that the ulna and the contracted cicatrix would ultimately form a good support for the hand.

Having been requested by the attending surgeon to perform the necessary operation, directions were given to prepare the patient by a few days' rest, aided by a generous diet and a moderate amount of wine; and to facilitate the separation of the sloughs, charcoal and yeast epithems were applied twice a day.

*July 31, 11 o'clock A. M.* Having satisfied myself that the heart was free from organic disease, anæsthesia was readily induced by the administration of a mixture of equal volumes, in measure, of sulphuric ether and chloroform. I then made an incision about five inches long, extending through the diseased tissues down to the bone, from the proximal end of the scaphoid bone to a point about five inches on the inner aspect of the radial bone of the forearm. Upon carrying the finger to the bottom of the incision, from three to four inches of the radius were found denuded of periosteum, and the substance of the bone enlarged by osteitis and osteophytic deposits. By using the handle of the scalpel and the finger, the soft parts were carefully pushed aside and protected from injury by a pair of metallic retractors. The curved end of one of the retractors having been passed under and round it, the bone was divided about a line or two above the diseased part by the convex edge of a Hey's saw, and by manipulating the free end as a lever, it was easily detached from its articulation. The ulna and carpal bones were found free from disease. By this procedure the division or injury of vessels or tendons was avoided. I was assisted in the operation by her attending physician, Dr. T. G. Horn, and also by Dr. Jones, of Junction City, the former of whom was assiduous in his attentions and efforts to consummate the object of the operation. The upper portion of the wound was reunited by silver sutures, and the granulated surfaces approximated by means of adhesive strips passed from behind and made to decussate over the line of the incision. The wound was then dressed with carbolized glycerine and the limb supported on a suitable splint. Potassium bromide was ordered as a substitute for the narcotics hitherto in use. Beef essence, poached eggs, milk and light wine ordered as diet.

*August 1, 12 M.* Patient passed a comfortable night; did not sleep much, but feels tranquil and much relieved in having passed through the trying ordeal, the fear of which had caused severe mental anxiety prior to the operation.

Wound looks well. Where it was practicable to use the sutures, union has taken place. A slight erythematous blush extends half way up to the forearm. Removed sutures; ordered a small piece of ice applied on the outside of the dressing, and continued previous treatment.

*2d.* Feels much better, having enjoyed a fair amount of sleep. The erythema has disappeared; pulse 90.

*3d.* Continued improvement. Wound granulating nicely. Tendency to diarrhœa during the night, owing, doubtless, to the ill-effects of the effluvia from the wound, which, despite the carbolized dressing applied morning and evening, rapidly became very offensive, owing to the high atmospheric temperature—85° to 95° F.

*4th.* Is better; bowels regular. Wound looks favourable. Continue treatment.

*5th.* Continued improvement. Has a return of her former appetite, and relishes her food.

*6th.* Does not feel quite so well to-day. Through the misconception of her attendant, the patient has had potassium bromide administered to her at frequent intervals, so that she took one ounce of the remedy since I saw her yesterday. The amount ordered was fifteen grains at bedtime, to be repeated twice during the night, if necessary. The quantity given has produced an extreme degree of lassitude and weariness of the whole body. The patient appears haggard and fatigued, the mouth is dry and the pulse 100, but without any marked increase of the normal temperature. Wound granulating rapidly and looking healthy. Some slight tumefaction on the back of the hand; a piece of ice was ordered kept on the outside of the

dressing. Ordered egg-nog and milk-punch in addition to other remedies and extract of conium or hyoseyamus as a substitute for potassium bromide. Her brother, a physician, came to visit and remain with her yesterday, and promises to watch the case carefully hereafter, she having missed certain minor attentions which are not ordinarily obtainable in a hotel or boarding house.

7th. Condition much better. The conium induced a night of refreshing sleep, the best, she says, that she has enjoyed in six months. Tumefaction disappeared from dorsum of hand. Wound discharging freely and granulations looking healthy. Appetite better; pulse 96.

9th. Continued improvement. Put on citrate of iron and quinia and aromatic extract of cinchona.

12th. Patient is able to sit up in bed and hold the disabled arm with the other hand. The wound continues to granulate satisfactorily, and all traces of the old sloughs have disappeared. Appetite good; sleeps well, and is cheerful. Ordered a bandage of mosquito netting applied, so as to crowd the tissue during the formation of the cicatrix.

20th. Has continued to improve. Wound nearly healed. A small superficial slough formed and separated four days ago. The felt splint, applied to support the arm while suspended in a sling around the patient's neck, has become limp and soft by moisture, allowing the hand to tilt too much to the radial side, causing the ulna to partially slip from its carpal articulation. To remedy this defect the hand was again placed on a light flat splint supported by a handkerchief bandage. The wound continues to diminish, and the patient is now able to get about the house and sit in the open air.

25th. Is almost well, and anxious to return to her family, in the southern portion of the State. The wound has almost completely healed, and the prospects are that the hand in time will be a very useful one and free from any deformity. As she is now able to be about, her brother returned to his home some days ago, and at my visit on the 30th, I found that she had followed his example, but, in the hurry and anxiety to reach the home circle, had forgotten to discharge even the claims of gratitude to her medical benefactor.

The wood-cut showing the condition and extent of bone removed, is taken from a photograph of the specimen, deposited in the Army Medical Museum.

In excision of the wrist-joint the extremity of the *radius* was excised as early as 1758 by Cooper of Bungay, and subsequently by Moreau in 1794. (Ashhurst's *Principles and Practice of Surgery*, 1871, page 602.) But the removal of any considerable portion of the distal end of the shaft of the bone does not appear to have been recorded prior to the early part of the sixth decade of the current century. The removal of the articular surface or extreme distal extremity of the bones of the forearm, necessary in excision of the wrist-joint, as performed by Cooper and subsequent operators, leaving a sufficient or suitable base upon which to cöapt and sup-



port the carpal bones, is a measure of almost a totally different character in extent and magnitude. In 1853, Dr. Compton, of New Orleans, *resected* the bone of the forearm, removing both bones "with the exception of the *inferior* extremity of the radius;" and Erichsen, of London, states that he *resected* the *whole* radius "with the exception of its articular head, which was sound," but I am unable to give the date of his operation, as it is not alluded to in the copy of Erichsen's work before me. The *entire* *exsection* of the radius in 1854 by Dr. Carnochan, of New York, demonstrated the feasibility of preserving a useful hand after the removal of the principal supporting base thereof; and, as a sequence to the experience gained by his major operation, we find that, in 1857, the same surgeon excised, "the *lower* four-fifths of the bone" from a female patient, aged 31, who made an excellent recovery, the functions of the hand—the left—being so little impaired that she was able to perform her household duties nearly as well as before the operation. (Vide *American Journal of Medical Sciences*, vol. xxxvi. p. 89, *et seq.*)

Professor Gross, of Philadelphia, excised "somewhat more than the *upper* third of the bone" in 1857, and in 1859 Prof. Choppin, of New Orleans, "resected all *but* the *inferior* articular extremity of the bone." I have seen it stated that West, of Birmingham, resected a considerable part of the distal extremity of the radius with success, but I am unable to state the exact time and character of his particular operation.

While the whole of the ulna has been removed, with successful results, by Carnochan, Jones, and Williams, and segments thereof, more or less extensive or important, according to the situation and nature of the operation performed, by several other American and European surgeons, I am unable to discover that any extensive portion of the *lower* extremity of the *radius*, beyond that immediately engaged in the formation of the wrist-joint or in close proximity thereto, had been removed prior to the operation of Dr. Carnochan in 1854, and, although extensive portions of the *upper* part of the bone have been removed in several instances, the *exsection* of any extensive part of the *lower extremity* of the *radius* does not appear to have been performed except in the instances already mentioned.

Since the foregoing was written, I have learned from Dr. Horn that he had seen the patient in February last, at which time she was able to flex and extend the fingers of the hand separately and pronate the arm. Her health he describes as excellent, and states that she used a broom in sweeping the floor to show how well she could use the limb. The wound made by the operation had cicatrized satisfactorily, but the disease manifests some disposition to reappear in the carpus. After her hurried flight, he says, she was allowed to follow the bent of her wayward disposition, and the carpo-ulnar articulation had not been properly maintained in position.

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